

Serial No.: 09/423,806

REMARKS

Claims 1-21, as amended, remain herein.

Claims 1-6, 10, 11, 15 and 17-19 have been amended more clearly to describe applicants' invention. Claim 21 has been amended to reword the preamble.

The Abstract has been revised.

Applicants respectfully request the Examiner to provide an initialed copy of PTO Form 1449 indicating receipt and consideration of references accompanying an Information Disclosure Statement filed January 6, 2000.

1. The preamble of claim 21 has been amended to refer to the method of claim 19.

2. Claims 1-21 were now rejected under 35 U.S.C. §103(a) over Kano et al. U.S. Patent 5,598,136 and Senda et al. U.S. Patent 5,197,170. Applicants respectfully traverse the rejection.

Kano et al. '136 was cited as allegedly disclosing a spiral coil conductor together with electrodes and insulation layers,

Serial No.: 09/423,806

as recited in applicants' claim 1. Kano et al. '136, Fig. 5, shows a "spiral" shaped conductor defining a path across a two-dimensional surface, and not a three-dimensional volume.

Webster's II New College Dictionary, page 1065, (copy enclosed) defines "spiral" as a curve on a two-dimensional plane that winds around a fixed center point at a continuously increasing or decreasing distance from the point, and also defines "spiral" as a three-dimensional curve that turns around an axis at a constant or continuously varying distance while moving parallel to the axis, i.e., a "helix". Thus, "spiral" is defined as meaning both a two-dimensional and three-dimensional curve.

Accordingly, claims 1-6, 10, 11, 15 and 17-19 have been amended to replace "spiral" with "helical", which is consistent with applicants' Figs. 1, 3, 6 and 11-13, showing a conductor having a three-dimensional helical shape.

Kano et al. '136 discloses a spiral conductor lying on a two-dimensional planar surface, and does not disclose or suggest a three-dimensional helical conductor. Senda et al. '170, cited for allegedly disclosing a capacitive element formed of

Serial No.: 09/423,806

insulation and electrode layers, also does not disclose or suggest a helical conductor.

For the foregoing reasons, neither Kano et al. '136 nor Senda et al. '170 contain any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention. Nor is there any disclosure or teaching in either of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicants' presently claimed invention. Claims 2-9, which depend from claim 1, are allowable for the same reasons as claim 1; claims 10 and 11 are allowable for the same reasons as claim 1; claims 12-16, which depend from claim 11, are allowable for the same reasons as claim 11; claims 18 and 19 are allowable for the same reasons as claim 11; and claims 20 and 21, which depend from claims 10 and 19, respectively, are allowable for the same reasons as claims 10 and 19. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

All claims 1-21 are now proper in form and patentably distinguished over all grounds of rejection cited in the Office

Serial No.: 09/423,806

Action. Accordingly, allowance of all claims 1-21 is respectfully requested.

Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives.

Respectfully submitted,

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April 11, 2003

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Attachment: 1 page from Webster's II
New College Dictionary

CAW:RNW/dlb

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Webster's II

New College Dictionary



Houghton Mifflin Company

Boston • New York

spine

The human spine:

- A. cervical vertebrae,
B. thoracic vertebrae,
C. lumbar vertebrae,
D. sacral vertebrae

e (spī-nēl') *n.* [Ital. *spinella*, dim. of *spina*, jointed crystals] < Lat. *spina*.] Any of several green, blue, or black minerals with compositional being valued as a gem.
adj. 1. Lacking a vertebral column. 2. Having lacking courage or will power. — **spine/less-**
ness *n.*

of SPINEL.
s'ant *adj.* [Lat. *spinescens*, *spinescent*, become thorny < Lat. *spina*, thorn.] Biol. 1. ing or tending toward the form of a spine.

bs. Fr. *espinette* < Ital. *spinetta*.] 1. A small, 2. A small harpsichord with a single keyboard.
l'or-as *adj.* [Lat. *spina*, thorn.] **SPINY** 1.
s' *n.* [NLat. *Spinifex*, genus name: Lat. *spina*, iake.] An Australian grass, chiefly of the genus *and* regions and has spiny leaves or seeds.
cor *n.* [Orig. unknown.] *Naut.* A large trian- hat swings out opposite the mainsail, used on ning before the wind.

One that spins. 2. An angler's lure that spins ed over the hub of the propeller in some air- cused of a dial and an arrow that is spun to in- a board game.

it' *n.* 1. Zool. A posterior structure in spiders e, containing passages through which silky fil- A device for making rayon, nylon, and other sting of a plate pierced with holes through is extruded in filaments.

pl. **neys.** [Ofr. *espine*, thicket < Lat. *spi- spina*, thorn.] Chiefly Brit. A small grove.
1. The process of making fibrous material into

A machine that draws and twists fibers into dindles.

A spinning machine having several spindles.
A device for making yarn or thread, consisting n wheel and a single spindle.

' *n.* 1. Something, as a product, derived from ore or less unrelated: BY-PRODUCT. 2. Some- earlier work, esp. a television show starring a upular minor role in an earlier show.

di. [Lat. *spinosa* < *spina*, thorn.] **SPINY** 1 < a nose/ly *adv.* — **spi-nos/i-ty** (-nōs/i-tē) *n.* iō-tēk'tal) *adj.* Of or relating to the spinal cord

lj. 1. Like a spine or thorn. 2. Having spines or tny.

The rearward projection from the arch of a ver- of the other vertebrae forms the spine.

n. [ME *spinnester* < *spinnen*, to spin.] 1. A ned single beyond the conventional age for mar- an. 3. A woman whose occupation is spinning.
n. — **spin/ster-ish** *adj.*

(spin-thār/i-skōp') *n.* [Gk. *spintharis*, spark + berving individual scintillations produced by sisting of a tube with a magnifying lens at one end screen and a speck of radioactive salt at the
— **scop/ic** (-skōp'ik) *adj.*

n. [Lat. *spinula*, dim. of *spina*, thorn.] Bot. A

— **lōs'** also **spi-nu-lous** (spi'nyā-lās) *adj.* 1. aped like a spinule.

usoidal wave of quantized energy propagated

through a substance as a result of shifts in atomic magnetic fields as a response to outside stimuli.

spin-y (spi'nē) *adj.* **-i-er, -i-est.** 1. Bearing or covered with spines, thorns, or similar stiff projections. 2. Shaped like a spine. 3. Difficult, troublesome < *spiny problems* > — **spin/i-ness** *n.*

spiny anteater *n.* The echidna.

spin-y-finned (spi'nē-fīnd') *adj.* Having fins supported by sharp, spiny, inflexible rays.

spin-y-head-ed worm (spi'nē-hēd'id) *n.* Any of various worms of the phylum Acanthocephala, endoparasitic to vertebrates and characterized by a cylindrical retractile proboscis bearing many rows of hooked spines.

spiny lobster *n.* Any of various edible marine decapod crustaceans of the family Palinuridae, having a spiny carapace and lacking the large pincers characteristic of true lobsters.

spin-y-rayed (spi'nē-rād') *adj.* Spiny-finned.

spir-a-cle (spī'rā-kəl, spī'rā) *n.* [Lat. *spiraculum*, breathing hole < *spirare*, to breathe.] 1. Zool. A respiratory aperture, esp.: a. Any of several tracheal openings in the exoskeleton of an insect or spider. b. A small respiratory opening behind the eye of fishes; as sharks, rays, and skates. c. The blowhole of a cetacean. 2. Geol. A small volcanic vent formed by gases on a lava flow. 3. An aperture through which air is admitted and expelled. — **spi-rac/u-lar** (spī-rāk'yā-lar, spī-) *adj.*

spir-a-e (spī-rē'a) *n.* var. of **SPIRAE.**

spiral (spī'ral) *n.* [Med. Lat. *spiralis* < Lat. *spira*, coil < Gk. *speira*.]

1. The locus in a plane of a point moving around a fixed center at a monotonically increasing or decreasing distance from the center. 2. a. The three-dimensional locus of a point moving parallel to and about a central axis at a constant or continuously varying distance: HELIX. b. Something shaped like such a curve < *spirals of smoke* > 3. The course of flight path of an object rotating on its longitudinal axis. 4. A continuously accelerating increase or decrease < the wage-price spiral >

adj. 1. Of or resembling a spiral. 2. Coiling in a constantly changing plane: HELICAL. 3. Circling around to form a series of constantly changing planes. — **v.** **-r-aled, -ral-ing, -rals or -ralled, -ral-ing, -rals.** — **vi.** 1. To take a spiral form or course. 2. To rise or fall with steady acceleration. — **vt.** To cause to take a spiral form or course. — **spi-ral/i-ty** (spī-rāl'i-tē) *n.* — **spi-ral-ly** *adv.*

spiral binding *n.* A binding for notebooks and booklets in which a cylindrical spiral is passed through a row of punched holes at the edge of each sheet.

spiral galaxy *n.* A galaxy having a spiral structure.

spi-rant (spī'rant) *n.* [Lat. *spirans*, *spirant-*, pr. part. of *spirare*, to breathe.] A fricative. — **spi-rant** *adj.*

spire (spīr) *n.* [ME < OE *spīr*.] 1. A top part tapering upward: PINNACLE. 2. A structure, as a steeple, that tapers to a point at the top. 3. A slender tapering part, as a newly sprouting blade of grass. — **v.** **spired, spir-ing, spires.** — **vt.** To furnish with a spire. — **vi.** To rise taperingly.

spire (spīr) *n.* [Fr. < Lat. *spira*, coil < Gk. *speira*.] 1. A spiral, esp. a single turn of a spiral: WHORL. 2. Zool. The area farthest from the aperture and nearest the apex on a coiled gastropod shell.

spire-a also **spi-rac-a** (spī-rē'a) *n.* [Lat. *spiraea*, meadowsweet < Gk. *speira* < *speira*, coil.] A plant or shrub of the genus *Spiraea*, including the bridal wreath, hardhack, and meadowsweet, with small white or pink flower clusters.

spi-reme (spī'rēm) also **spi-rem** (-rēm) *n.* [G. *Spirem* < Gk. *speirēma*, coil < *speira*.] Biol. 1. The tangle of filaments that appears at the beginning of prophase in meiosis or mitosis. 2. One of the filaments appearing in meiosis or mitosis.

spi-rif-er-ous (spī-rīf'ar-əs) *adj.* [SPIR(e) + -FEROUS.] Having a spiral structure or spiral parts.

spi-ril-lum (spī-rīl'əm) *n.* **pl.** **-ril-la** (-rīl'ə) [NLat. *Spirillum*, genus name, dim. of Lat. *spira*, coil < Gk. *speira*.] A flagellated aerobic bacteria of the genus *Spirillum*, with an elongated spiral form.

spit (spīt) *n.* [ME < AN < Lat. *spiritus*, breath < *spirare*, to breathe.] 1. The vital principle or animating force traditionally be- lieved to be within living beings. 2. The soul, considered as departing from the body of a person at death. 3. **Spirit.** The Holy Ghost. 4. **Spirit.** Christian Science. God 1c. 5. A supernatural being. 6. a. The part of a human being associated with the mind and feelings as distinguished from the physical body. b. A person's essential nature. 7. A person as characterized by a stated quality < a bold spirit > 8. A specific inclination or tendency. 9. **spirits.** An emotional state. 10. A particular emotional state characterized by vigor and animation. 11. Strong loyalty or dedication. 12. The predominant mood of an occasion or period < the spirit of 1776 > 13. The real sense or significance of something < heed the spirit of the law > 14. **often spirits.** An alcohol solution of an essential or volatile substance. 15. **spirits.** An alcoholic beverage. — **vt.** **-it-ed, -it-ing, -its.** 1. To carry off mysteriously or secretly < kidnappers who spirited the child off > 2. To impart courage, animation, or determination to: INSPIRIT.

*** syns:** SPIRIT, BRIO, DASH, ÉLAN, ESPRIT, LIVELINESS, PEP *n.* CORE

boot- you out th thin th this ū cut ūr urge y young

you abuse zh vision ə about, item, edible, gallop, circus

meaning: a lively, emphatic, eager quality or manner < worked with extraordinary spirit >

spir-it-ed (spī'rī-tīd) *adj.* 1. Full of or marked by animation, vigor, or courage < a spirited discussion > 2. Having a specified mood or nature. < low-spirited > — **spir-it-ed-ly** *adv.* — **spir-it-ed-ness** *n.*

spir-it-ism (spī'rī-tīz'm) *n.* SPIRITUALISM 1a. — **spir-it-ist** *n.* — **spir-it-is'tic** *adj.*

spirit lamp *n.* A lamp using alcohol or other liquid fuel.

spir-it-less (spī'rī-tīs) *adj.* Devoid of energy or enthusiasm: LIST- LESS. — **spir-it-less-ly** *adv.* — **spir-it-less-ness** *n.*

spirit level *n.* LEVEL 7a.

spirit of wine *n.* Ethyl alcohol.

spir-it-ous (spī'rī-təs) *adj.* 1. Spirituous. 2. Archaic. Refined: pure.

spirits of turpentine also **spirit of turpentine** *n.* TURPEN- TINE 1.

spir-i-tu-al (spī'rī-tchō-əl) *adj.* 1. Of, relating to, consisting of, or having the nature of spirit. 2. Of, concerned with, or affecting the soul. 3. Of, from, or relating to God: DEIFIC. 4. Of or belonging to a church or religion: SACRED. 5. Relating to or having the nature of spirits: SUPERNATURAL. — **n.** 1. a. A religious folk-song of African-American origin. b. A work composed in imitation of a spiritual. 2. **often spir- ituals.** Religious, spiritual, or ecclesiastical matters. — **spir-i-tu- al-ly** *adv.* — **spir-i-tu-al-ness** *n.*

spir-i-tu-al-ism (spī'rī-tchō-əl-iz'm) *n.* 1. a. The belief that the dead communicate with the living, usu. through a medium. b. The practices or doctrines of those holding such a belief. 2. A philosophy, doctrine, or religion emphasizing the spiritual rather than the material. — **spir-i-tu-al-ist** *n.* — **spir-i-tu-al-is'tic** *adj.*

spir-i-tu-al-i-ty (spī'rī-tchō-əl'i-tē) *n.* **pl.** **-ties.** 1. The state, quality, or fact of being spiritual. 2. The clergy. 3. **often spir-itu-ali- ties.** Something, as property or revenue, belonging to the church or to a cleric.

spir-i-tu-al-ize (spī'rī-tchō-əl-iz') *vt.* **-ized, -iz-ing, -iz-es.** 1. To impart a spiritual nature to. 2. To invest with or treat as having a spiritual sense or meaning. — **spir-i-tu-al-iz-a'tion** *n.* — **spir-i- tu-al-iz'er** *n.*

spir-i-tu-al-ty (spī'rī-tchō-əl-tē) *n.* **pl.** **-ties.** Spirituality.

spir-i-tu-el also **spir-i-tu-elle** (spī'rī-tchō-əl', spī'rē-tō-əl', -tū) *adj.* [Fr., spiritual.] Having or evidencing a refined mind.

spir-i-tu-ous (spī'rī-tchō-əs) *adj.* Resembling or containing alcohol. — **spir-i-tu-ous'i-ty** (-ōs'i-tē), **spir-i-tu-ous-ness** *n.*

spiro- *pref.* [Lat. *spirare*, to breathe.] Respiration < *spirometer* >

spi-ro-chete also **spi-ro-chaete** (spī'rā-kēt') *n.* [NLat. *Spiro- chaeta*, genus name: Lat. *spira*, coil + Lat. *chaeta*, bristle < Gk. *khai- tē*, long hair.] Any of various slender, nonflagellated, twisted microorganisms of the order Spirochaetales, many of which are path- ogenic, causing syphilis and other diseases. — **spi-ro-chet'al** (-kēt'l) *adj.*

spi-ro-che-to-sis (spī'rā-kēt-tō'sis) *n.* [SPIROCHET(E) + -OSIS.] A disease, as syphilis, caused by a spirochete.

spi-ro-graph (spī'rā-grāf') *n.* An instrument for registering the depth and rapidity of respiratory movements. — **spi-ro-graph'ic** *adj.* — **spi-ro-graph'i-cal-ly** *adv.* — **spi-rog'ra-phy** (spī- rōg'rā-fē) *n.*

spi-ro-gy-ra (spī'rā-jī-rā) *n.* [NLat. *Spirogyra*, genus name: Lat. *spira*, coil + Gk. *gyros*, ring.] A freshwater alga of the genus *Spirogyra*, having chloroplasts in spirally twisted bands.

spiro-oid (spī'roid') *adj.* Like a spiral.

spi-rom-e-ter (spī-rōm'ī-tar) *n.* An instrument for measuring the volume of air entering and leaving the lungs. — **spi-ro-met'ric** (-rā- mēt'rīk) *adj.* — **spi-rom-e-try** *n.*

spi-ro-no-lac-tone (spō-rō'nō-lāk'tōn', spī-rōn'ā-) *n.* [SPIR(O) + -NO- (of unknown orig.) + LACTONE.] A steroid, C₂₄H₃₂O₆, used med- ically as a diuretic.

spirt (spūrt) *n.* **pl.** **Chiefly Brit. var. of SPURT.**

spir-u-la (spī'yā-lā, spī'rā-) *n.* **pl.** **-lae** (-lē') [NLat. *Spirula*, genus name, dim. of Lat. *spira*, coil < Gk. *speira*.] A cephalopod mollusk of the genus *Spirula*, with a spirally coiled, partitioned internal shell.

spit (spīt) *n.* [ME *spitten* < OE *spittan*.] 1. Expectorated saliva: SPIT- TLE. 2. The act of expectorating. 3. Something, as the frothy secretion of certain insects, that is felt to resemble saliva. 4. A brief, scattered fall of rain or snow. — **v.** **spat** (spāt) or **spit, spit-ting, spits.** — **vt.** 1. To eject from the mouth. 2. To eject as if by spitting < spat out an order > — **vi.** 1. To expectorate. 2. To express contempt or ani- mosity by or as if by spitting. 3. To make a hissing or sputtering noise. 4. To rain or snow in light, scattered drops or flakes.

spit (spīt) *n.* [ME < OE *spitu*.] 1. A slender, pointed rod on which meat is skewered for broiling. 2. A narrow point of land extending into a body of water. — **vt.** **spit-ted, spit-ting, spits.** To skewer on or as if on a spit.

spit-al (spīt'l) *n.* [ME *spitel* < Med. Lat. *hospitale*. — see HOSPITAL.] A hospital, esp. one for contagious diseases.

spit-ball (spīt'bōl') *n.* 1. Paper chewed and shaped into a lump for use as a projectile. 2. Baseball. An illegal pitch in which the ball is moistened on one side with spit.

spit curl *n.* [From the use of saliva to fix the curl.] A spiral curl pressed flat against the cheek or forehead.

spite (spīt) *n.* [ME, outrage, insult, ill will < OFr. *despite*. — see DE-

: ā father ē pet ē be hw which f pit
ō toe ō paw, for oi noise oo took